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(19) (CA) **CANADIAN PATENT** (12)

(54) FLANGE ALIGNER

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ABSTRACT OF THE DISCLOSURE

A unitary device for relatively aligning two adjacent pipe flanges (end flanges of large pipes as are used in water, sewage and other installations) into registry so that the pipe flanges may be bolted into juxtaposition. The device includes an index finger which inserts into a bolt hole of one flange and an adjustable bolt adjustably positioned through an anvil member of the device and positioned over the adjacent flange. Turning down of the bolt on the one subjacent flange, urges that flange into registry with the other pipe flange for bolting together.

This invention relates to a flange aligner.

In pipe fitting where large pipes with flange members (pipe flanges) are mated together, there is difficulty, from time to time, to align the respective pipe flanges into registry for bolting into juxtaposition so that the corresponding ends of pipe can be mated and sealed. This problem is particularly acute with large pipes as are common in petro-chemical installations, water, steam and the like.

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I have discovered a simple unitary device which provides means for aligning adjacent end flanges of pipe into relative registry so that they may be bolted together and the ends thereof mated.

The invention therefore, contemplates a flange aligner for relatively aligning two adjacent end flanges of large pipe, said flanges disposing, circumferentially about the pipes, a plurality of apertures through which securing bolts can be mounted, the flange aligner comprising:

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(a) a body member having a protruding male index member terminating at a distal end, the said end adapted to mate into an aperture of a flange,

(b) a protruding anvil member surmounting the male index member and extending beyond said distal end thereof to define thereat a location,

(c) an adjustable bearing member extending through the location and defining at one end a bearing surface,

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(d) means for adjusting the bearing member and hence the bearing surface relative to the distal end whereby alignment of adjacent flanges may be induced by the relative position between the distal end and the adjustable bearing surface.



The embodiments of the invention will now be described by way of example with reference to the accompanying drawings.

Figure 1 is a perspective view of an embodiment of the invention.

Figure 2 is a perspective view of the embodiment of figure 1 in application.

10 My flange aligner 10 is composed of a unitary body member 11 having a projecting male index member 12 and a projecting anvil 13. Through the anvil 13 an adjustable bolt 14 (adjustable bearing means) is mounted having at its end, a bearing surface 15. The body member 11 preferably has the form as shown in figure 1 so as to provide, as part of the body member 11, a handle portion 16 which defines in part an aperture 17 to accomodate the fingers of ones hand. The other extremities of the aperture 17 are closed by connecting arms 18 and 19 unitarily associated with the body member 11.

20 In application, the index member 12 is inserted into one of the many apertures 21 of a flange 22 mounted (as by welding) to the end of a pipe 25. This flange 12 is to be mated with a corresponding adjacent flange 23 associated with another length of pipe 30 to thereby allow the pipes to be mated. The projecting anvil 13 projects "over" the corresponding flange 23 since it surmounts the index member 12. By "turning-down" the adjustable bolt 14 such that the bearing surface 15 thereof engages the upper surface of the flange 23, the two flanges 22 and 23 are brought into registry or alignment; thereupon, a bolt 26 can be inserted into the adjacently aligned apertures 31 and 32 of the corresponding flanges 22 and 23 as shown by the centre line 33, and secured. Thereupon in a

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conventional manner the other nuts and bolts are secured and in this process the flange aligner 10 is removed.

I have found that the rigidity and strength of a flange aligner can be reduced somewhat if the body of the flange is formed in a manner such that a segment of its base also forms an essentially flat surface 18 while disposed an appropriate distance, and hence parallel to, the axis of the male projection. In such a manner, the surface 18 also acts on the pipe 25, referring to figure 2, to urge against it and to additionally assist in the relative alignment of the flanges 22 and 23 prior to the installation of the first bolts 14.

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The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A flange aligner for relatively aligning two adjacent end flanges of large pipe, said flanges disposing, circumferentially about the pipes, a plurality of apertures through which securing bolts can be mounted, the flange aligner comprising:
 - (a) a body member having a protruding male index member terminating at a distal end, the said end adapted to mate into an aperture of a flange,
 - (b) a protruding anvil member surmounting the male index member and extending beyond said distal end thereof to define thereat a location,
 - (c) an adjustable bearing member extending through the location and defining at one end a bearing surface,
 - (d) means for adjusting the bearing member and hence the bearing surface relative to the distal end whereby alignment of adjacent flanges may be induced by the relative position between the distal end and the adjustable bearing surface.
2. The flange aligner as claimed in claim 1 where the adjustable bearing member is the end of a bolt which threadingly engages and extends through the anvil member with means on the bolt for turning the same down on the anvil and hence to relatively positionally dispose the bearing surface and the male index member.
3. A flange aligner capable of being assembled on the adjacent ends of pipes for providing alignment between first and second such pipes, such pipe ends each having a circumferential flange defining apertures therein for receiving bolts therethrough for securing the pipes together, the flange aligner comprising:

(a) a body member having a protruding male index member with an end, said index member being adapted to be fitted into the portion of an aperture in the flange on the first pipe, said portion being remote from the portion of the aperture adjacent to the end of the first pipe;

(b) an anvil member connected to said body member at a position radially outward from said male index member, said anvil member extending substantially parallel to said male index member and being adapted to extend beyond the end of the first pipe to a position radially outward from the flange on the second pipe;

(c) an adjustable bearing member mounted on said anvil member and being adapted for movement radially inward to engage the flange on the second pipe, whereby alignment of the apertures in adjacent flanges may be induced by the relative movement between said male index member and said bearing member.

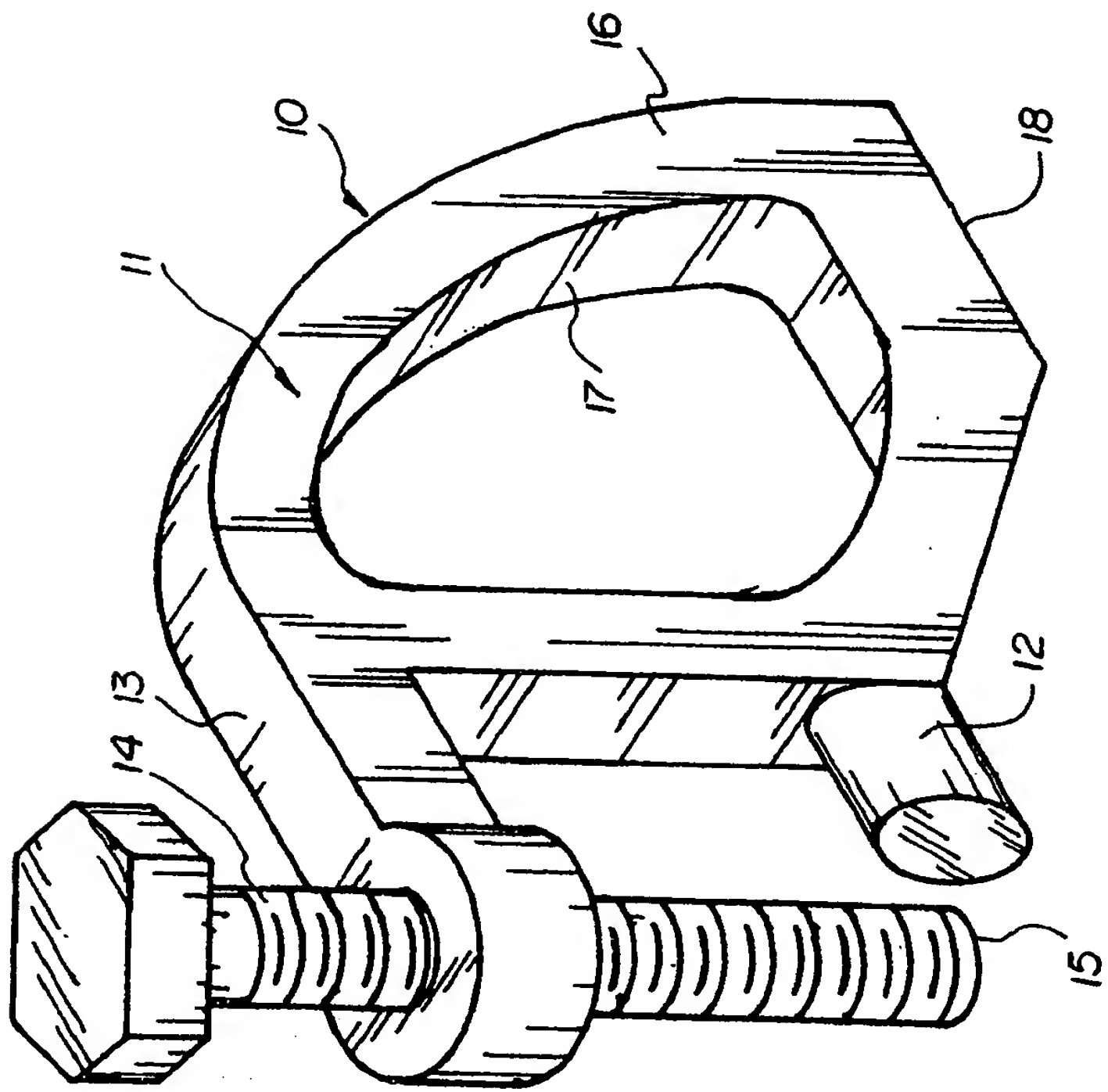


FIG. 1

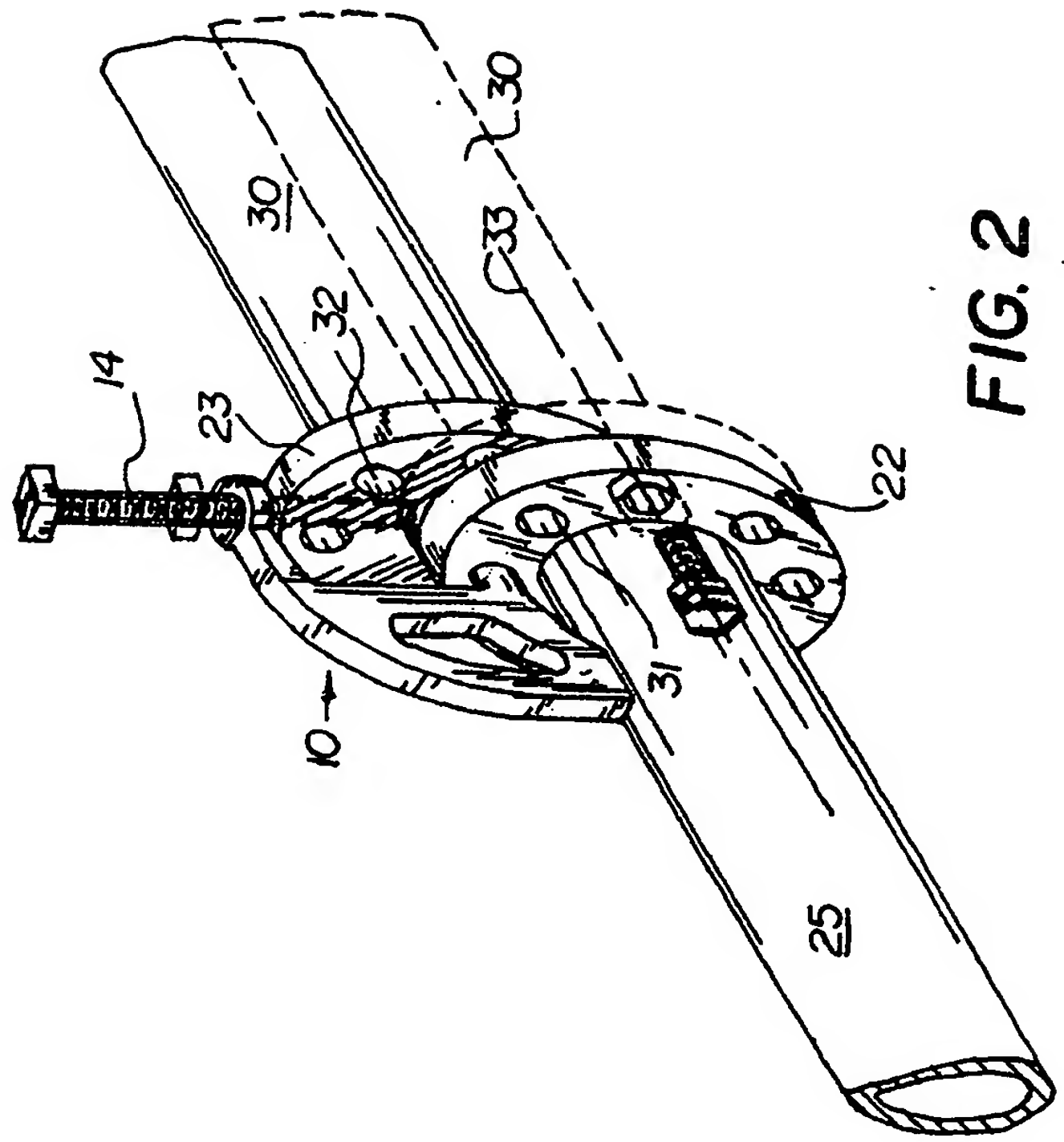


FIG. 2

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 BY: MITCHES & CO.
 AGENTS

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